

# Power Of Compositing!

**Big Bang Compositing**

**Optimizing Production Workflow Using a Lightgroup Approach in Blender**

**Stained the Game**

**A Closeup Portrait**

**Create your own video game**



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With the growing popularity of 3d printing and the lowering cost of both 3d printing services and 3d printers themselves, now is an exciting time to take a closer look at 3d printing and Blender. We are going to look at what it takes to print something in 3d, the services/materials available and some of the more popular 3d printers on the market.

What we are looking for:

- Do you have a 3d printer?
- What kind?
- How does it work with blender, what do you need to keep in mind during the design phase
- Do you use a 3d printing service?
- Which one, what has been your experience, what have you had 3d printed?
- Designing for 3d print, what do you need to keep in mind
- Using 3d printers for rapid prototyping and product design

\*warning: lack of submissions could result in an entire issue of fuzzy bunnies, puffy hearts and a galley filled with random images off my hard drive .... ..... goes off to check number and variety of images on my hard drive .... just in case.

# EDITORIAL



**Sandra Gilbert**  
Manager/Editor

*"It never dawned on me that you all were setting up basic lighting then tweaking it in the compositor."*

In a nutshell, compositing is the process by which you combine separate elements into a new cohesive "whole". This new whole can be an image or a sequence of images.

It would be nice to imagine that you could just throw it all together and have it look good. Unfortunately the greater majority of projects are not that easy. This can, and often does lead to elaborate setups to achieve the desired result or effect.

This also completely explains why my projects are kept as simple as possible. Simple projects generally require very little compositing. Or so I thought.

Until recently, I was fairly happy with how my projects were turning out. They weren't jaw dropping works of art that would stun the world for decades. But they weren't supposed to be, so I was good with it. I was quite happy with the occasional simple Al-

pha Over and maybe a Vignette.

So what changed? Tutorials of course. After watching and doing a number of tutorials over the last several months a few things actually registered. Like the sheer power and potential of compositing. I know you are all thinking "Well Duh!, What took you so long?"

My answer? Stubbornness and a pretty fair amount of confusion. To be honest I am still fairly confused, but at least a few composting tasks finally make sense. One in particular caught my eye recently and rather blew my mind.

We all know I have spent years struggling with lighting setups. I had pretty much concluded that this was just something I would have to deal with. I obviously was never going to fully "get it". Then while going through Blender Cookies' Interior Architectural series (done by Jonathon Williamson), I saw the most amazing thing.

Jonathan showed how to take the image from acceptable lighting (already better than what I normally achieve), to something impressive. I was dumbfounded to say the least.

Ok, you can stop laughing at me. I know it shouldn't have been so surprising, but it was. I have struggled

with lighting for so long I had obviously just decided the rest of you were frigging lighting geniuses. It never dawned on me that you all were setting up basic lighting then tweaking it in the compositor.

Which of course makes me wonder what other magic tricks you are all performing in the compositor.

While I ponder the ramifications of this monumental discovery, I encourage you to ponder all the fun articles we have gathered up for this issue on, you guessed it, the "Power of Compositing" •

# IZZY SPEAKS - Add-ons save the day



Izzy Speaks

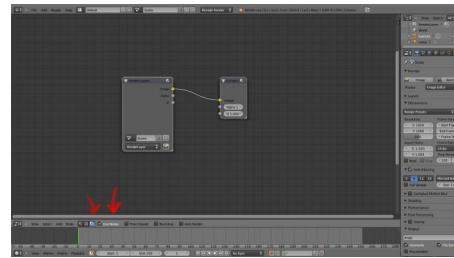
**H**aving recently discovered how easy it is to create and re-use Node groups, I decided that it would be oh so efficient to build a Library of useful Node groups that I could link or append as needed.

It would be nice if I had decided this 6-7 months ago because I would now have a pretty cool library of Node groups that I have seen in various tutorials.

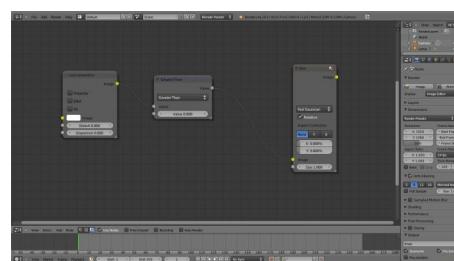
Oh well, since I have to start somewhere, I am going to start with a Vignette group. I really like the effect of a Vignette and it only requires 3 nodes. Which makes it highly annoying that I can't remember how to set it up from one project to the next. This of course means every time I need it, I have to go to Andrew's Blender Guru site and scroll through a tutorial until I get to the part where he applies the Vignette so I can see how to do it once again. Creating a Vignette Node Group will allow us to skip this time consuming step.

## Okay, so let's create that Vignette.

- Open Blender
- Switch the 3D view to the Node Editor (Image 0) and toggle the Compositing button
- Select Use Nodes
- A Render layer node and a Composite node will appear, just move them off to one side as they are not needed right now
- Add the following 3 Nodes (image 1)
- Distort > Lens Distortion



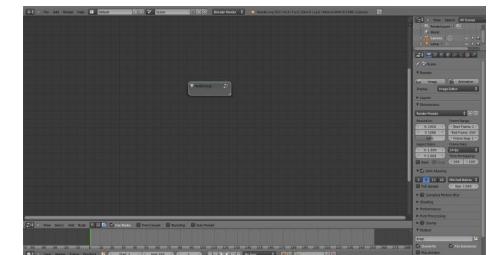
- Convertor > Math
- Filter > Blur
- Connect them up and then press Control + "G" to create a Node Group (image 2)



Once you have the Node group, there are just a few more things to adjust to create the promised Vignette and to make it user friendly.

- Press "Tab" to open the Node group
- At the Top, change the name from "node group" to "Vignette" and press the "F" to the side of the name, to create a false user (this prevents Blender from deleting the node group when we close the file).
- In the Lens Distortion Node, set distort to 1
- In the Math Node, select "Greater than" and set the value to "0"
- In the Blur Node, select Fast Gaussian, Rel-

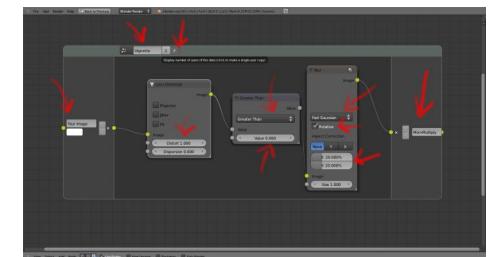
ative and choose a Percentage in the X and Y



(20 is a good amount.)

That it for the Vignette setup, real easy. Now to make our Node group a little more friendly and to help those of us with memory issues :P.

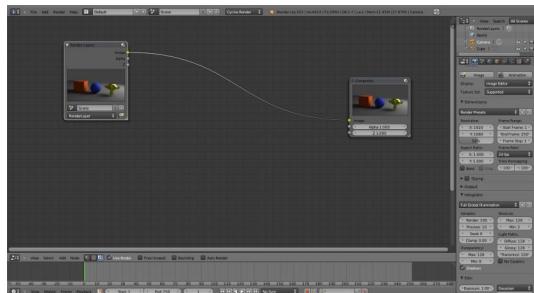
You can see on each side of the opened Node group that there are new little sockets. You create those by dragging from



one or more of the sockets of the Nodes inside.

I chose to give my new sockets names that would clue me in to what I needed to connect into this Node Group next time I use it. For more complicated groups, you might consider opening the text editor and jotting down any notes or directions needed to make this node work for future

# IZZY SPEAKS - Add-ons save the day



projects.

- Okay Save your file with a useful name like "Node



Group Library"

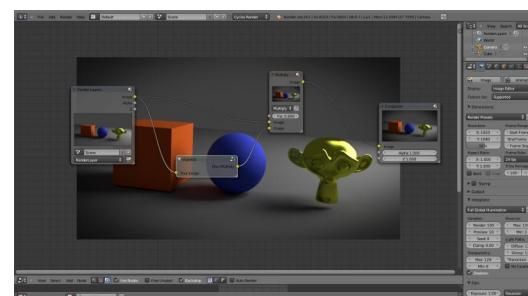
- Then save it somewhere you can find it easy for future use.

## Now to use your cool new library in a future project

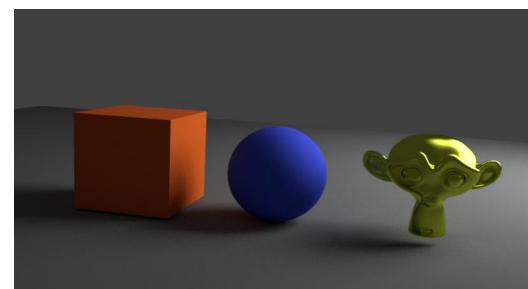
- From your project blend, set up and render your image
- Switch the 3D view to the Node Editor and toggle the Compositing button
- Select Use Nodes
- A Render layer node and a Composite node will appear

- Pull your rendered image (or layer) into the Render Layer Node

Now we need to import our Vignette from the Node Group Library



- Shift + F1, browse to where your library is saved
- Click on the Node Group file and then on "Node Tree"
- Your Vignette Group should be visible, select it
- You can Link or Append depending on what you need for the project



Back in the Node Editor

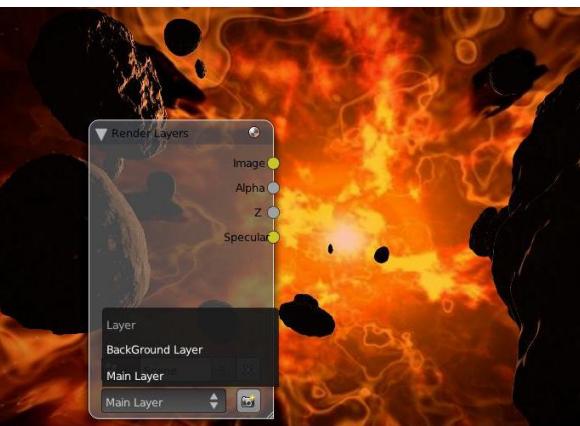
- Add > Group > Vignette
- Your Vignette group now appears (image 5)

- Now connect your Node Group and adjust for personal taste (image 6)

Super easy and a great way to re-use useful node setups without manually setting it up every time you need it.

Okay, now I am off to collect more useful groups to add to my Library •

# 3D WORKSHOP - Big Bang Compositing



by - H. Riza

## Introduction

Firstly, I want to remind you of what we have done before. I wrote about the modeling and lighting two issues ago. In this tutorial I will tell you how to use basic compositing settings. We will add into our scene: defocus (DOF), glare, blur, color balance, vignette and mix nodes. Let's start.

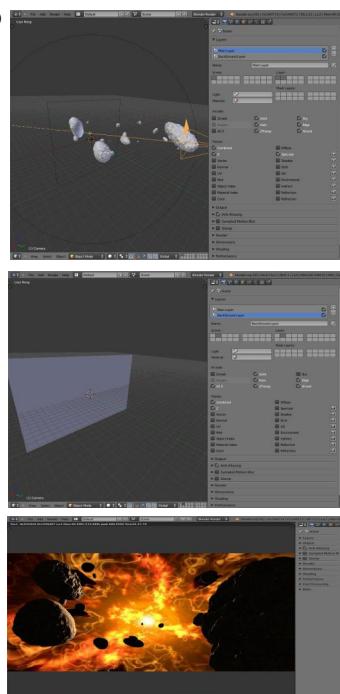
### Step 1 and 2

Before compositing, we have to check the layer's settings. In Main Layer, both layers are selected. Check the second image. As you can see in the background layer, only the second layer is selected. Don't forget that in the background layer "All Z" is checked.

All Z is about the objects which are behind each other. the background plane is behind rocks which is why we have to select All Z.

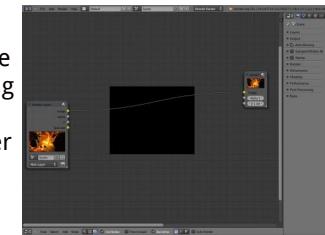
### Step 3

Quickly do a render to start compositing.



### Step 4

Go to the node editor and change from Shader node to Compositing node. Then select "Use nodes" and "backdrop". The Main Render Layer and a Composite Output node will appear.



### Step 5

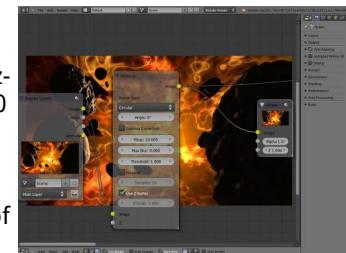
Add a "Defocus" ( add->filter->defocus) and "Viewer" node (add->output->viewer). Now, we will attach the main render layer to "Defocus" and "Defocus" to the "Viewer" node to see the result. So connect the Main Render Layer's Image to "Defocus's Image" and "Z" to the "Z". In the same way, connect "Defocus's Image" to "Viewer's Image".



If your "Backdrop" render is too big like mine, press "V" a few times to reduce it. You can increase the size again by "Alt+V".

### Step 6

Let's push it aside and take a look at "Defocus. Check out "Preview" and check the "Use z-buffer" option. Make "fstop" 10 and check the result. Fstop is your blur level between 0 and 128. But don't make it 0 because your render will be full of black. And if you make it 128 your blur will disappear. Okay, now, we have a good "Blur" node!



# 3D WORKSHOP - Big Bang Compositing

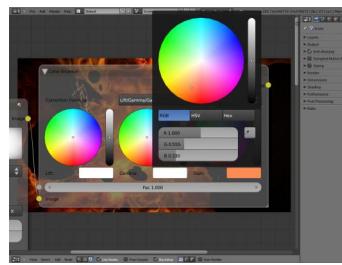
## Step 7

Now, we will add some nodes for vignette compositing. Add a "Lens Distortion" node (add->distort->lens d.) and make the distort value 0.1. Then attach it with the Render Layer and add a "Math node" (add->convertor->math). Then set the operation to "Greater Than". Attach the "Lens Distortion's Image" to the first value and make the second value zero. Add a new "Blur" node (add->filter->blur) and make it "Fast Gaussian". Check the "Relative" option and and give two random values to "X" and "Y". See the image and check your settings! We will see the result later in "Color Balance".



## Step 8

Add a new "Color Balance" node (add-> color->color balance) and make its "Gain" near to a red color. Then, attach the "Blur" node's image with "Color Balance's".



## Step 9

Now, we will see the result. Add a new "Mix" node (add->color->mix) and make it "Multiply".



Then attach one of the images with "Color Balance" and other with the "Render Result" image. Now take the "Viewer" node and attach it to the multiply "Mix" node. You can see the result.

## Step 10

Add a new "Render Layer" node (add->input->render layer) and make it Background Layer. This will be our background plane's node.



## Step 11

Add a new "Glare Effect" node (add->filter->glare) and attach it to a "Viewer" node. "Glare Effect" will give our scene

some awesome lights. "Iterations" is about the length of the light. "Color Modulation" is about the colors that are in the main light. For example, if you increase "Color Modul", you will have colorful lights. But we don't want that. That is why we make it zero. "Threshold" is about the power of the lights.

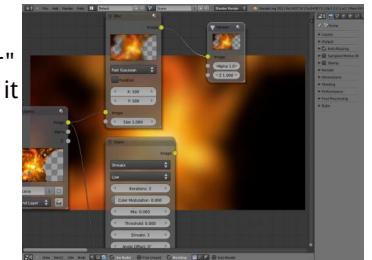


If you reduce it, the lights will have more energy. So, make it zero for more light. "Streaks" is about the number of your lights. If you reduce it, the number of lights will reduce. Three is fine. "Angle Offset" is about angle of your lights. We don't need it. And "Fade" is the brightness of your

lights. 900 is fine. Attach the "Glare" node to a "Viewer" node. You will understand that I am telling about what up to now. Change the value and see the different result.

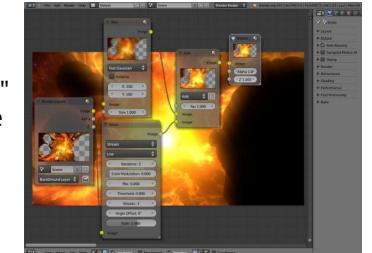
## Step 12

Add a new "Blur" node and make it "Fast Gaussian" and give the same value to "X" and "Y". Of course, you can give different values. But if you give different values, this will be against the rules of physics. I suggest making "X" and "Y" 100.



## Step 13

Attach "Glare" and "Blur Effect" with "Mix" node set to Add and see the result.



## Step 14

Look at the image. I deleted all the "Mix" nodes to see what we have done clearly.



# 3D WORKSHOP - Big Bang Compositing

## Step 15

Now, check the image. I added all the "Mix" nodes. Attach "Vignette Group" and "Render Layer" with a "Mix" node set to "Multiply". Then, attach the "Defocus" and "Multiply Mix" nodes with a "Screen Mix" node. Go to the second Render Layer and attach "Blur Effect" and "Glare Effect" with a new "Mix" node. Then, make the "Mix" node "Add". Then, attach the "Add Mix" node and "Screen Mix" node with a new "Screen Mix" node. At the last, add a new "Composite" node ( add-->output-->composite) and attach the last "Screen" node with a "Viewer" node and with the "Composite" node. "Composite" node will help us to see the all compositing settings in UV/image editor.



## Step 16

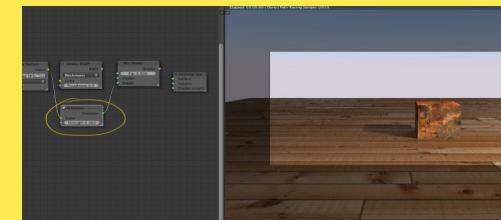
Yeah! We have done the "Big Bang Scene" finally. Save the render. I hope you enjoy on this tutorial! See you later! ●



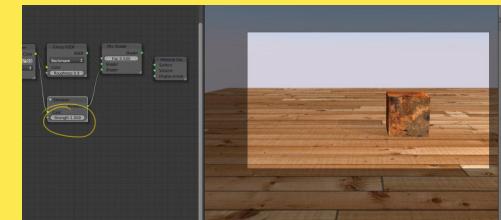
## Emission Texture TIP!

by - Krzysztof Bozalek

I've found out it very difficult to light a scene using image textures because every picture has different lighting. To compare this, you can simply add the emission shader to the original texture image.

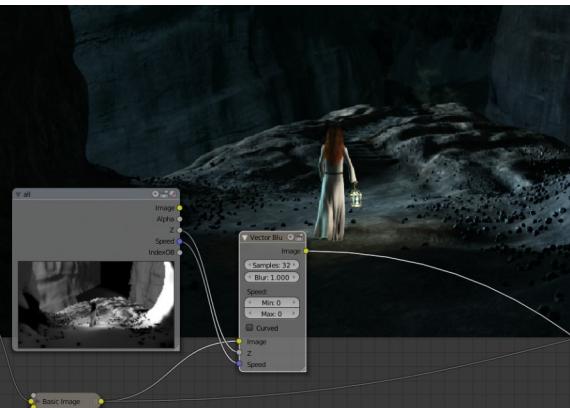


As you can see, by changing the strength of the emission you can light only one element of the scene without affecting the others.



Using this technique you can control every aspect of the picture texture such as saturation, hue, brightness, contrast etc. before you even start lighting the scene. It is even possible to create the whole scene without using an additional light source.

# 3D WORKSHOP - Optimizing Production Workflow Using a Lightgroup Approach in Blender



by - Martin Lubich

## Introduction

Tweaking the lighting - colors, color balance, light balance, shadows etc - can take a lot of iterations. To work efficiently you need fast feedback of the changes you do.

If you use the traditional approach to re-render after every change, tweaking just one light can easily consume hours of precious time. The tedious and monotonous aspect of this work takes away the artistic spirit and tends to lead to sub optimal results. If this is true for still images it is even more important for animations.

The workflow described below makes heavy use of Blender's layer system, render passes and uses the compositor to do all the real lighting stuff. This workflow was developed to be able to efficiently get the result I wanted for my animated short.

The basic idea is to break down each light contribution into a separate manageable piece. Having all these parts at hand leaves you with a tool to explore various lighting approaches without the extra penalty of having to re-render a shot.

A note on the used blender versions: The example used here is part of a movie project which started 3 years ago, and therefore I used Blender 2.49 for everything except the compositing and VFX. But the techniques described here are directly usable in the current Blender version as well.

### Planning the lighting

To get the most flexibility out of the lightgroup workflow, it is necessary to thoroughly plan out all the pieces you want to have control over. This includes the following:

### What lights do I have in my scene ?

Well that is pretty obvious. But in this case the term light should not be seen as a single lamp in Blender, but as a light source in a more general way. This could be the sun, ambient lighting, bounce lights etc.

In the preparation of my example scene I have the moon as a main light source, the lights in the cage as a secondary light source (which are more restricted in range) and finally I have a general ambient light, coming mainly from the bounced moonlight. So the setup is pretty simple in regards to the number of light sources.

### What objects/characters and/or environment parts do I have in my scene, which do I want to handle individually ?

Usually you want to control how a light source (e.g. the moon) acts on individual pieces of your scene. The moonlight playing with the girl's dress has a very different quality to it than the moon light on the distant cliffs. To be able to find the right lighting balance between the main parts of a scene, you have to divide it properly. Separating the main parts allows you to more easily set the focus for areas of interest in your shot.

### What level of control do I want to have over individual parts of a character/object ?

This is the next level of partitioning the scene. There may be parts of the main objects which need to have special treatment in terms of their reaction to light. To balance out these parts, you might want to have control of them individually. While some of these aspects can of course be achieved through material settings, it is faster to plan for these parts to be separately addressable.

Ara, the girl in this example, has her dress, hair and face as the main contributions to her appearance. Being able to control those pieces individually will also help in the final compositing/lighting. While the main division is done using the

# 3D WORKSHOP - Optimizing Production Workflow Using a Lightgroup Approach in Blender

layer system, this is more a mixture of using the layers and material/object IDs.

## Executing the lighting plan

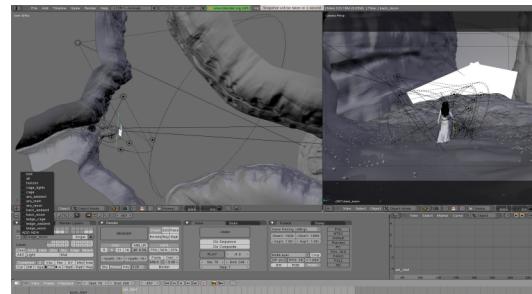
Lets have a look on how these planning steps were realized in the current example.

- I use the moon, the cage light and some ambient lighting as contributing light sources.
- I want to have control over the girl, cage, foreground and background.
- I want even further control over the girl's dress and hair.

With this I will need the following setup:

- a background part with layers for the moonlight and ambient light
- a foreground part with layers for the moonlight, cage light and ambient light
- the girl with layers for the moonlight, cage light and ambient light
- the cage with layers for the lights and a cage light
- a VFX (mainly clouds) layer without any lighting

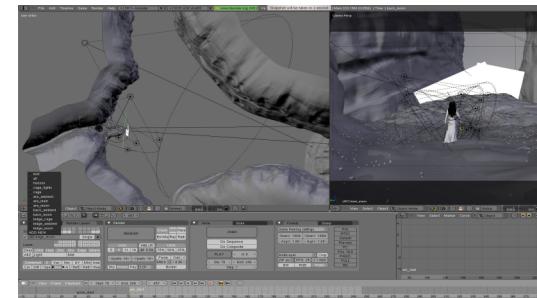
Lets have a look at the actual scene setup in Blender.



Here you see all layers activated and the setup looks a bit crowded. You can see that render

layers are created for each light and main part of the scene as discussed above.

Let's have a closer look at one specific render layer.



Here we have the render layer for the foreground (ledge) lit by the moonlight. For clarity I have only activated the layers which are referenced directly by the render layer setup.

Now this is much simpler. I have a simple buffer shadow lamp acting as the moon, which lights the ledge. But you may also notice a small lamp at the position where Ara is walking. This is a shadow only lamp and will only create the shadow Ara casts from the moon light. So why not using the first moon lamp to create the shadow and spare the extra lamp?

Using an extra lamp here gives the advantage of a much better resolution for the shadow, which is something to be considered. As you can see, the main moonlight lamp spans a huge volume of space. If I used this lamp as shadow source, the created shadow would be very blocky and not well defined. One could increase the buffer resolution and sampling parameters, but this all has its limits and does not lead to a satisfying result in this example.

The solution is to use an extra shadow only lamp with much lower volume coverage. This shadow lamp is also placed on a layer together with the girl and the ledge. So although the layer is not rendered in this render layer the objects still cast shadows, which is exactly what I want.

Another thing to notice are the individual render passes activated for this render layer. Apart from the Combined and Z pass, I have included a shadow pass (with the option to be excluded from the Combined pass) and the AO pass to be excluded too, but not rendered out. Why is this?

Well, I do want to have full control over the shadows later in compositing, so I remove the shadows from the combined render and create an individual pass for it. With this it can be added again later but at my own discretion and artistic need. And the excluded AO is important too. As the name 'Ambient Occlusion' already suggests, the AO effect must only be used with any ambient lighting and never with direct lighting as is the case with the direct moonlight. Doing this will give you much better and less harsh (and in a way 'more correct') AO shadows in the final composite.

These considerations and steps are now done for each light group/object pairing. To arrive at the full lighting setup I break down the placing of the individual lamps in much the same manner as described above.

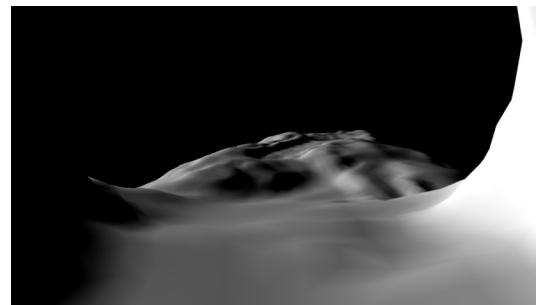
What cannot be done in post is to change the direction of the lighting. This still has to be done in the initial scene setup before rendering. And here is where another iteration round is due. But we can apply the same principles to this step as well: focus only on the aspect you want to change, in this case the direction of the light and its impact on the image.

# 3D WORKSHOP - Optimizing Production Workflow Using a Lightgroup Approach in Blender

I do this by using a lower poly environment and characters and a material override with a simple clay material, which renders extremely fast. Furthermore any AO is disabled. With this setup I investigate each individual light source in terms of light direction and shadow attributes. The turnaround time is very fast for this type of setup. On my system (AMD quadcore 2.7 Ghz) the rendertime was around 1-2 sec.

I found the reduction to this very basic setup very enlightening (pun intended). It lets you focus on the very specific aspect of each light in a very concentrated way.

See here for such a quick render:



The nice thing about light is that it is additive. So you can really concentrate on one light source at a time and with the clay render you have almost instantaneous feedback about the desired light properties. All the other properties such as color, shadow intensity, light balance etc. can be done in the compositing stage.

These steps have to be done for all the layers in question and can lead to quite a crowded scene. One of the problems you can run into is that you might run out of layers. In this case you have to split the scene into several blender scenes and render each one individually.

Another important thing to note is that all lamps used in the render are all pure white. No color is used. This will all be introduced later during compositing.

## Rendering

The next important step is to disconnect the render from the lighting phase, is to render out all the render layers and passes into individually accessible files, or as in case of this example into one multilayer EXR file, which holds all the layers rendered.

I do not execute the compositing step as part of the main render. This is done as a second step (and in my case even in a different version of Blender). The drawback here is that you create potentially big files, but disk space is relatively cheap and the benefits of doing it this way by far exceeds any disk space considerations. As a side note, one FullHD frame from this shot takes about 140MB, which is a lot, but blender can handle this quite well.

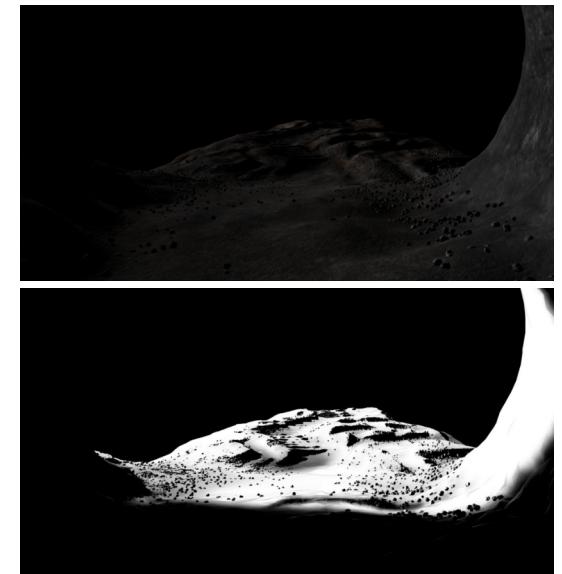
## Compositing - doing the actual lighting

Now lets take a close look on how to use all these layers to create the final composite and apply the lighting in the process.

Just like in the process of breaking down the scene, we do the reverse here - step by step, always concentrating first on the individual parts before looking at the bigger picture.

### Setup up the moonlight for the foreground:

I create a file input node and open the multilayer EXR file I have rendered out. All the individual render layers are accessible through the



dropdown box at the bottom, where I just choose the one called ledge\_moon. You can see the connectors for each of the render passes and looking at the combined and shadow pass gives us the following basic images.

For now the image is quite dark, but that will be handled a bit later. What has to be done beforehand is to add the shadow back to the image. This is done by multiplying the shadow pass with the base image. In this case I first have to prepare the shadow pass, so that it can be used without introducing artifacts, especially at the borders where nothing was rendered (the alpha value is 0).

You can see that for regions where alpha is 0, the shadow pass is totally black. For the parts where there is no foreground that is ok, but at the border where antialiasing is done we have intermediate grey values. Multiplying with this

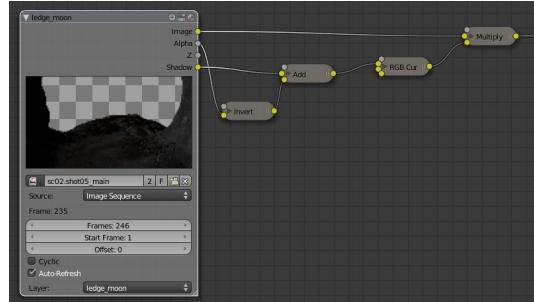
# 3D WORKSHOP - Optimizing Production Workflow Using a Lightgroup Approach in Blender

uncorrected shadow pass would give us dark borders around the ledge which are very visible later in the final composite. To correct this I have to make sure that the transparent regions are turned into white instead of black.

This can easily be done using the alpha channel. Inverting it and adding it to the shadow pass results in the following corrected shadow pass.



Now everything is fine and I can use the mix node set to multiply to introduce the shadow back to the image. Doing this will just recreate the image as if I hadn't removed the shadow and let Blender render the whole thing. To add the level of control I desire, I add an RGB node after the shadowpass before we connect it to the multiply node. With this I have a wide range of control over the attributes of the shadow.



Before playing with the shadows, add another

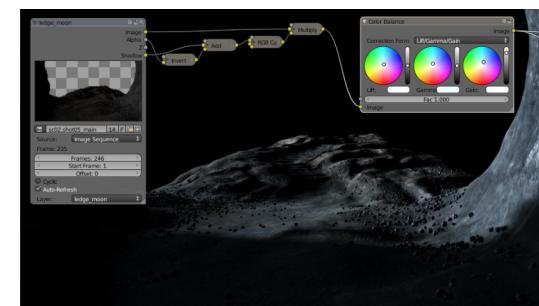
node (one of my favorites in regard to doing the post lighting); the color balance node.

See here for some quick examples which show the different results you can achieve with just this single node.

Increasing the Gain, while lowering the Lift increases the contrast. You get a very hard light setting. Playing with the Gamma affects the midtones, where you can also tweak the nature of the light. What's even more powerful now is the control you have over the color with this type of setup. Playing around with the colors can give you completely different moods and lighting setups and offers you a huge range of possibilities to achieve the look you are aiming for.

With this setup it is quite obvious that the workflow for setting up the correct color mood with the lighting is much more efficient and flexible than doing so with just changing the color of the lamp and re-rendering after every parameter change.

In the case of the current example, I want to emphasize the cool light of a moon and will use a more blueish light setup and at the same time a relatively harsh light with lot of contrast. This also emphasizes the inhospitable environment

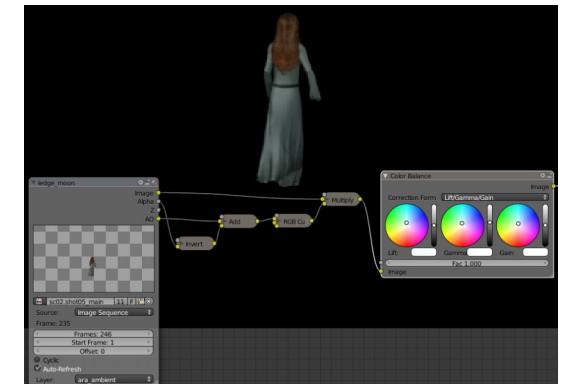


the girl is currently in.

For each lightsource/object pairing I use this noodle arrangement for the basic setup.

## Foreground Ambient Lighting

For this I just copy the same setup I used for the moonlight and use the render layer 'ledge\_ambient' as source. In case of the ambient light we have no shadow pass but instead an AO pass which we use in the exact same way as the shadow pass. For the ambient light I want to have less contrast and more color to the green.



## Combining Moon and Ambient Lighting

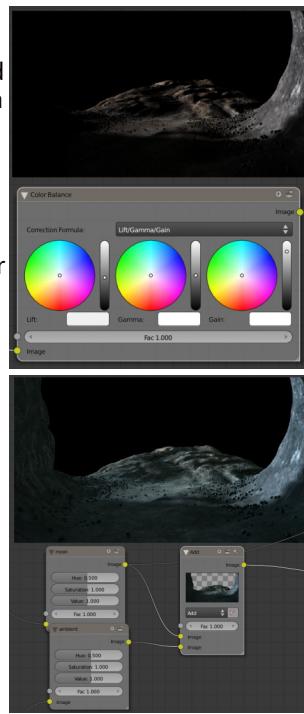
Combining two light groups is easy. Just use the Mix node set to the add operation. Light is by nature additive, so it's a very easy task to do this. You can control the amount of mixing with the factor value of the mix node, but in my experience it was better to control the mixing a bit more explicitly. After each light group I put a HSV node and mainly use the Value Slider to control the amount of light this light group

# 3D WORKSHOP - Optimizing Production Workflow Using a Lightgroup Approach in Blender

contributes. This gives me the control over both inputs and I even can go up to a value of 2 to double the amount of light from a group

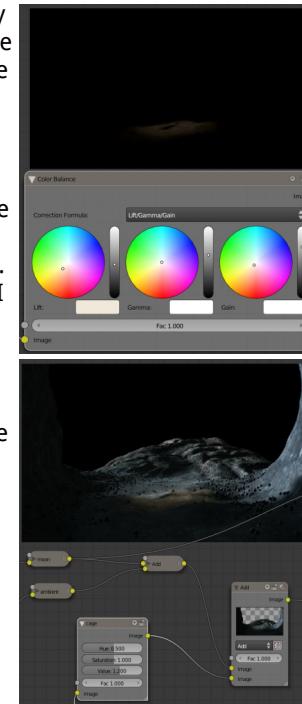
If I just add the two light groups together I get a quite washed out image, because the ambient part is much too high. I didn't pay too much attention in the initial lamp setup to have a proper balance here. It is not necessary and it also helps to better judge the single ambient pass clay render during the lamp setup phase. As all the layers are handled with float values, it is no problem (in terms of clipping or quantizing) to adjust the light groups to the amount I want.

It's now just a matter of adjusting the Value slider of the ambient HSV node to tune the ambient light to a level which is in accordance to the targeted result. The main effect you achieve with this is to lighten up the shadows which are pitch black. You also lighten up the moonlit parts as well, but this is not so noticeable. Another effect you get with this is colored shadows. As this mimics how real light works you do not have to resort to tricks like giving the shadow of a lamp a tint, but can do so by choosing what color your ambient light has.



## Adding the Cage light contribution

It's now just an easy exercise to setup the noodles for the cage light for the foreground. The cage light should have a warmer hue to it so I chose more red tones from the Color Balance node. With the HSV node I also tune the amount of this light source to be visible over the moon light and especially in the shadowy regions.



## Background Lighting Setup

Doing the exact same procedure with the moon and ambient render layers for the background gives me the following result.

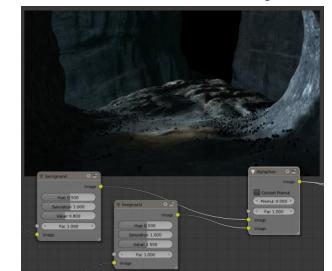


## Combining Background and Foreground

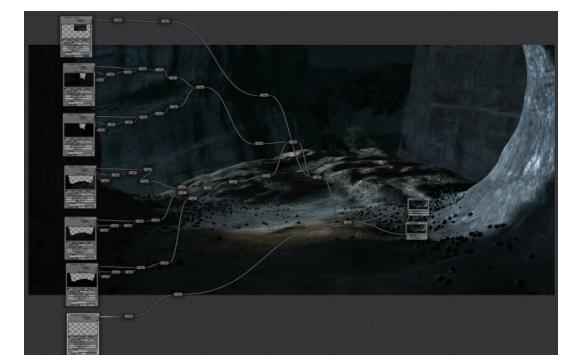
Now comes the next step. When combining light groups you have to add them together. In this case we have broken down parts from the scene, which have to be stacked together using the AlphaOver node.

Again to have full control I attach a HSV node to each of the scene parts (Foreground/Background) to be able to easily balance out the lighting.

I tone down the background layer slightly and reduce the saturation a bit to give the foreground ledge more focus.



## Adding Sky and Mist and finalizing the Environment



I have now added two additional render layers, one for the sky and one for the mist coming up

# 3D WORKSHOP - Optimizing Production Workflow Using a Lightgroup Approach in Blender

from the canyon. We do not have any explicit lighting on those layers. A color balance node is used to provide simple color correction and then the layers are combined with the AlphaOver node to form the full environment.

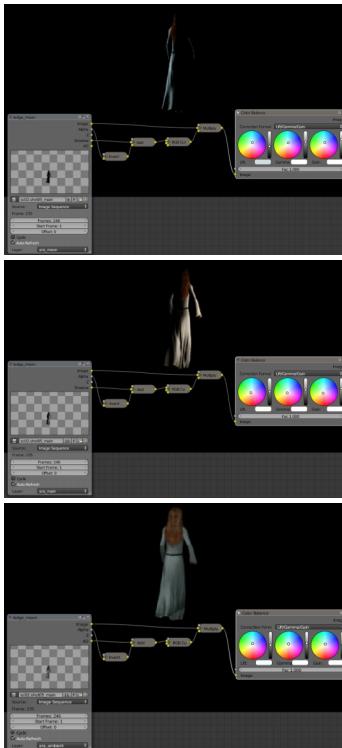
## Setting up the lighting for Ara

The lightgroups for Ara are the moon, ambient and the cage light. For each of these render layers I do a setup in the same way as with the ledge layers.

For the moon light I again choose a more blueish tint, as well as a high contrast setting.

The cage light should be a warmer light, so I choose a more orange/yellow hue. The contrast is also not as strong as the moon.

And finally we set up the ambient light. Ambient light typically has a low contrast and to go with the color of the ambient light of the environment I again choose a more greenish tint.



Again all these lightgroups get a HSV node to control their weight and are fed into Add nodes. The ambient light is a bit too bright so it needs a reduction. Using the following settings yields a nice balanced image of Ara.

Using these three lightgroups for Ara enables you to 'sculpt' with the light. The range of different expressions by just manipulating the contrast and tonal ranges of the 3 contributing lights is amazing.

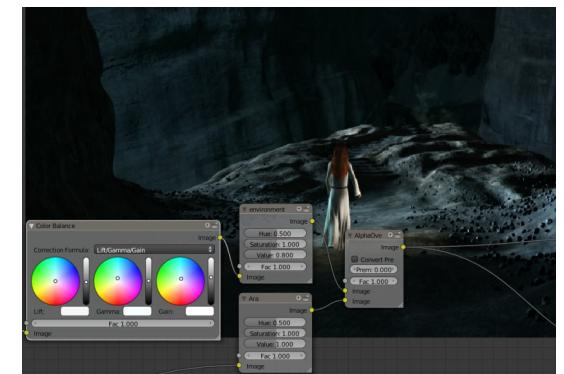
## Combining Ara and the environment

Now is the time to put together Ara and the environment. Again each of these two parts gets a HSV node before feeding into an AlphaOver node.



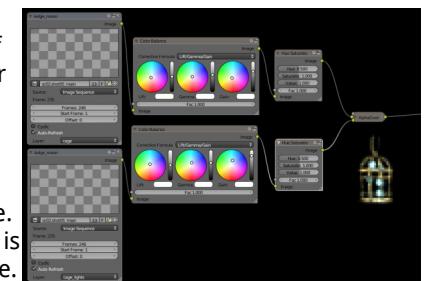
This is already quite nice, but lacks the contrast and punch I want it to have. First the

environment is too bright. And second it lacks a bit of contrast and could be a bit more on the blue side. Instead of going back to the individual light groups of the environment layers, I chose to put an additional color balance at the end of the environment setup. With this I can do the necessary color correction and get the balance I need



## Preparing the cage

The cage consists of two render layers, the cage itself and the glowing orbs inside. This setup is very simple.



## Adding the cage to the scene.

The cage is now added to the image using an AlphaOver node.

With this the lighting setup and basic

# 3D WORKSHOP - Optimizing Production Workflow Using a Lightgroup Approach in Blender



compositing is done. Now the tweaking can start. My workflow during the movie was always to develop a basic setup for a rough lighting and color and then iteratively refine the bits and pieces of the scene. The main knobs to turn are the HSV nodes and color nodes for each part.

You may have noticed that I rarely use the RGB Curve nodes for these sort of things. That is because I find it hard to exactly parametrize its values. It's just a visual estimate if I have the curve setup ok. And furthermore with the missing parametrization, RGB Curves cannot be animated.

## Compositing - Postprocessing

With the basic image in place we now add all the little things to make it really stand out and fit into the animation.

This phase typically involves nodes which will use the Z information of the image (DOF, atmospheric effect, motion blur etc). For these sort of manipulations I have prepared an 'all' render layer where all objects are present, but rendered with a default clay material. With this I get the Z for the whole scene as well as various Object IDs and the speed values. It depends on the complexity of the scene and the need for all

those channels if I actually choose to add an 'all' render layer.

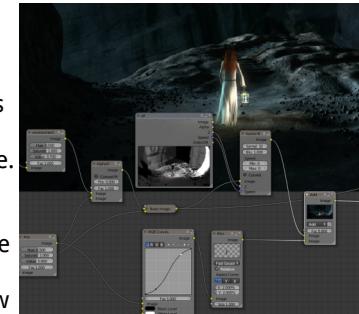
### Adding motion blur

The effect is not very visible here but it adds that extra bit of believability to the scene when watched as an animation.



### Making Ara stand out and giving her a bit of an ethereal appearance.

This can very easily be done by adding a glow to Ara. Here I use the node output of the combined Ara layers as starting point. I add a blur node, set to fast gaussian and a relative size of 2% for the blur amount. This is then added to the main image. In this case I use the factor of the mix node to control the amount of glow

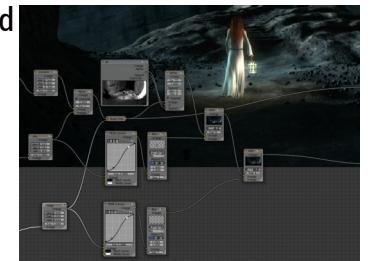


I want to add.

What has to be mentioned here though, is that adding the glow will most likely brighten the object too much. If this is the case I just go to the HSV node of the object in question (Ara in this case) and lower it a bit, so that the overall lighting balance is restored.

### Add glow around the cage

I use the same technique as with Ara's glow with the cage.



### Add some anamorphic glare to the orb lights

The orbs inside the cage act as a light source and thus they are very bright and typically overexposed. Very bright lights also tend to create light streaks with real world cameras. In this case I want to mimic the anamorphic horizontal streaks seen in various movies. (Star Trek XI made extensive use of this effect).

For this I start with the orb only layer and add another HSV node to really boost the intensity and feed it into a glare node. This glare node is set to have just 2 streaks and only produces the glare effect without the original input. For additional

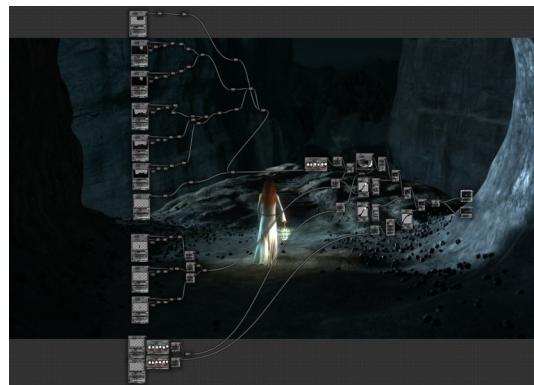


# 3D WORKSHOP - Optimizing Production Workflow Using a Lightgroup Approach in Blender

control/boost I add an RGB node before adding the glare back to the image.

## Final adjustments

In this case I just use a simple brightness/contrast node to finally tweak the image. This would also be a good place to add a final color balance node instead.



This concludes the description of my basic workflow. You may notice some differences between this final image and the one at the start of this article. The top image is actually directly taken from the movie. Originally it was processed at 1920x1080, while all the examples



here are at half the resolution. Furthermore, in my real compositing setup there is much more tweaking going on which I decided to omit here for the sake of clarity. In the download you will have the simplified as well as the full version I use in my movie.

## About the movie:

- Ara's Tale is a CG animated short written and directed by Martin Lubich.
- Production start was in summer 2009 and the initial idea was to have a very short (1.5 min) movie mainly for educational purposes. During development this short has grown and has reached now a size of 7.5 min. It started out as a one man project, but during the development Philippe Rey (music) and Mikkel Nielsen(sound) joined the team.
- This is a non commercial project and the work on Ara's Tale is done in the free time of each team member.
- The production of this movie follows the idea of the Open Movies done by the Blender Institute (Elephants Dream, Big Buck Bunny and Sintel).
- That means the whole process of creating this movie is open and done with preferably open software. The movie itself will be released under a CC license. All the production files and assets will be released under a CC license as well.
- The full development can be followed at <http://www.loram.net>.

Here is the [link to the zip file](#) with the blend files and the multilayer exr. The file is 39 MB.

The provided blend files only work with blender version 2.60a and 2.61. As I did the whole production with 2.60a I never tried the file(s) with the recent 2.63. Now that I tried it with recent versions, I recognized that unfortunately 2.62 and 2.63 do produce complete garbage •

## About the Author

Martin Lubich is living in Austria and is working as software engineer and does CG in his freetime. He has no formal education in art and CG, but has always had a high interest in CG related topics. He started to actively pursue this area in 2007 when he decided to take the steep learning curve of blender and has since gained quite some experience, especially during the 3 years of production of his short movie 'Ara's Tale'. His model of the 'Austrian Imperial Crown' is showcased in the render bible 'Physically Based Rendering' by Matt Pharr and Greg Humphreys, and Intel used the model to highlight its new rendering engine Embree. He plans to shift his professional focus from software development to CG in the next few years.

# MAKING OF - Stained The Game



by - Sushil

## Introduction

Stained is an upcoming indie game title from RealAxis software developed using Blender and Ogre3d. Stained is a side-scrolling, platforming and combat action game set in an ancient, mysterious castle featuring detailed 3D environments with a continuously changing game world.

Events in Stained are triggered by breaking objects placed in and around the castle. Outcomes are determined by the combination of glass pieces that litter the ground, leading to a variety of experiences. Novel ways to break objects have to be thought of which will keep the player guessing what the next puzzle will be. Victory in any fight in the game is usually temporary, as defeated foes may form again, or reassemble to form entirely new ones. The game-play is fully interactive and physics based – each character's uncanny abilities have to be kept in mind to think of innovative ways to proceed through the game!

Stained was developed entirely with open-source software. Modelling and level design was done in Blender, the graphics are powered by OGRE, and bullet drives the physics engine. Stained levels are designed in Blender using a level editor that was also built inside Blender.

The level design tools include a bunch of scripts that the user will have to run inside Blender, which in turn, will provide an easy to use interface to add and re-



move objects inside the game map. A short video given below explains what can be accomplished with the level creation tools.

Game Trailer :

<http://www.youtube.com/watch?v=O5Hf7Cr3HAQ>

Game Website :  
[www.stained-thegame.com](http://www.stained-thegame.com)

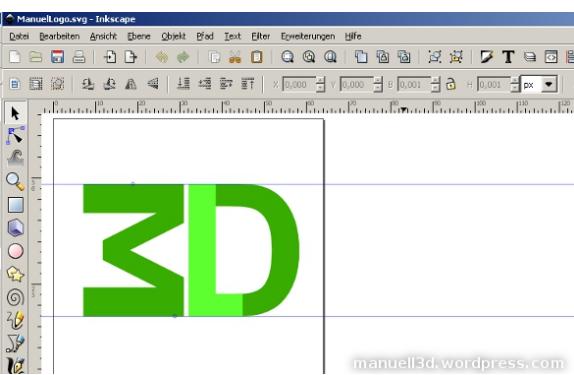
Stained Level Creation Process Inside Blender :



<http://www.youtube.com/watch?v=OmZ7xIuyryQ>

And lots of screenshots : <http://www.stained-thegame.com/gallery> ●

# MAKING OF - A Logo Animation



by - Manuel L 3D

## Introduction

Hi, I want to give you a little information about how my logo animation was made.

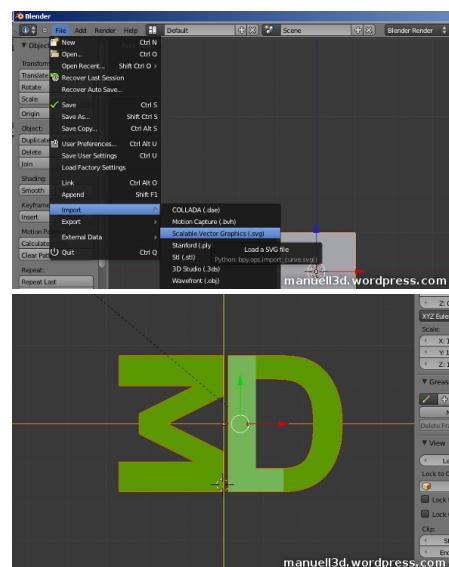
After I had designed my new logo in Inkscape I imported a 'light'-version of it into Blender using the SVG Import function (File -> Import -> SVG).

Once I had the vector in Blender I separated the parts from each other by using the 'Separate' function ('P').

To be able to rotate two objects with individual pivots around a shared pivot point, I parented both of them to an empty.

For the collision I wanted to have a convincing effect, so I set up a rectangle exactly in the space between the two parts. It was shadeless white with a tint of green for the massive glow effect and a copy of it for particle emission.

The shadeless white rectangle was only rendered for the frames of the collision.



To set up a nice composition I started to divide the whole scene into Render-layers (RL).

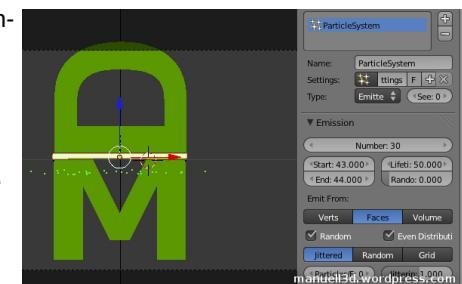
- RL 1: Contains the basic objects + the particle emitter
- RL 2: Contains ONLY the white rectangle for the glow effect
- RL 3: Contains a copy of the logo but in total black color
- RL 4: Contains a copy of the logo but in a much brighter green

The general setup was to use AlphaOver Nodes to arrange the layers as a stack.

Now I could start with compositing each layer in a different way.

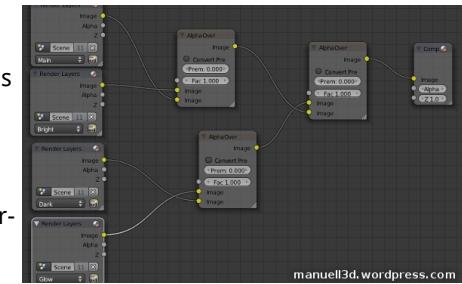
I gave RL1 a nice subtle glare, a very intense Glare + Glow for RL2 and Blur for RL3 and RL4, but with different values to give a very special glow effect.

Here you can see the glow which leaves a



Divide into Renderlayers:

Layer 1 only  
Layer 2 only  
Layer 3 only  
Layer 4 only



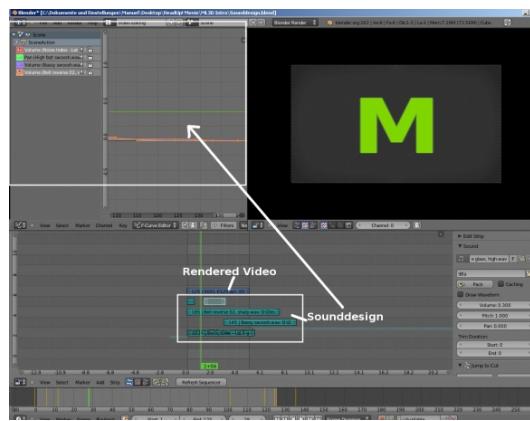
# MAKING OF - A Logo Animation

thin border around the logo, this way the bright glow won't distract from the also rather bright logo.



Then I rendered the scene several times with different Renderlayers active.

This is how the final cut in the VSE looks like:



Finally I put the rendered video into the empty VSE again and started Sound design. The best results could be achieved by using keyframes for the 'Volume' and 'Pan' value ●

# MAKING OF - A Close up Portrait



by - Osman Enrique Acasio

## Introduction

Greetings to BlenderArt Magazine readers. My name is Osman Enrique Acasio. I am an Industrial engineer living in Venezuela and use Blender in my daily work. In my free time, I am devoted to exploring the potential of the software and creating particular projects in combination with other free software such as GIMP and MakeHuman. In fact, the present article's purpose is to try and explain how I created the following close-up portrait by using Makehuman and Blender in a combined workflow.

### The 3d model

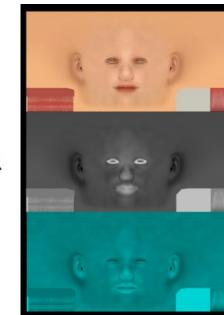
The modeling base to create the close-up portrait is obtained with MakeHuman, a powerful tool to generate human models. With the software, I created the character to my liking. Once one has the desired character and poses, it is exported to the wavefront format (with an obj extension) to take it to Blender.

### Texturing

The model exported to Blender requires a smoother mesh which is gained by applying a SubSurf Catmull-Clark modifier. The follow-



COLOR



SPECULAR

BUMP

ing step is to add the textures (color, specular and bump) to the model. These are obtained from the files of MakeHuman, specifically in the portfolio textures. The Bump texture modifies the mesh using grayscale values. I also use GIMP to apply an unsharp mask filter.

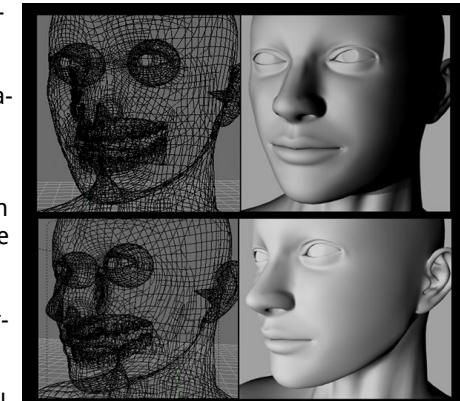
### The sculpting

Using the sculpting tools, I smoothed the cheeks of the model in the Sculpt Mode. The Flatten tool is ideal for such a purpose. In this stage I focused primarily on maintaining the proportions and being careful to keep the cheeks smooth.



### Lighting

For this project, I intended to use soft lateral illumination. This type of illumination gives excellent results and makes the texture of the skin stand out which is an ideal technique for portraits. I carry out different tests using several cameras. For each test, I have created different lights that only illuminate a certain area of the model. These tests give me an idea of how it will light the portrait.



# MAKING OF - A Close up Portrait

## Adding extra geometry

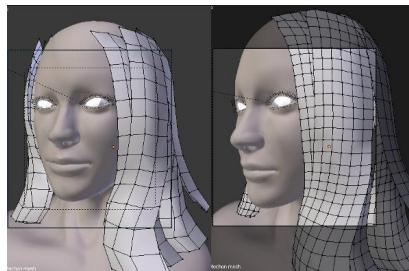
### Eye details

I use extruded plane polygons to make the eye-lashes and the eyebrows of the character. They are put in their place manually one by one.



### Hair modeling

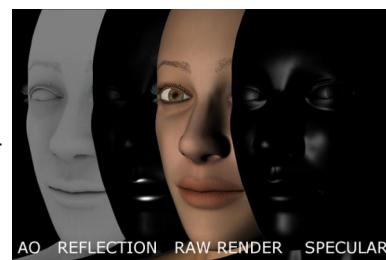
The hair was also created with geometry. This way I have more control with the design of the character's hair.



I have the option of testing with several looks and different cuts of hair. Making several tests helps to determine which is the most appropriate look and which is better before the camera lens.

### Rendering

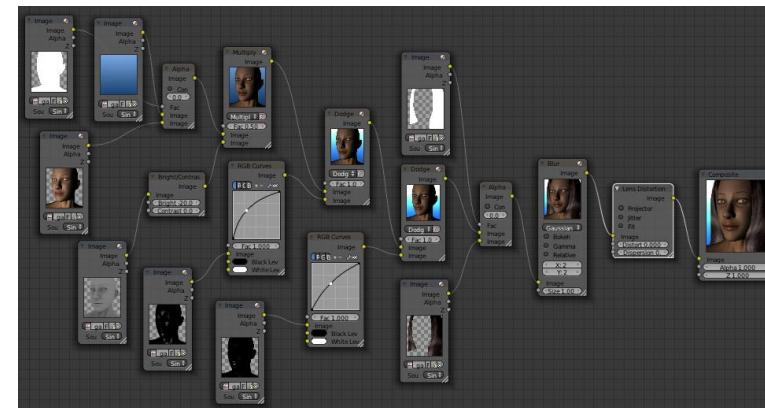
I created a number of separate layers. Each layer saves information in the \*.tga



format. The main layer is the Ambient occlusion and then there are layers for the raw render, a specular layer and a reflection layer. I modify the reflection layer so that it only affects the lips. See the following image for further information.

## Compositing

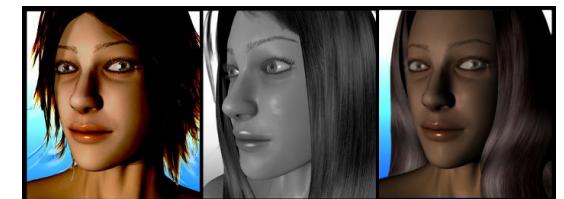
Finally, with all the layers rendered previously, I merge them using nodal composition. With this technique, I have more control over the process. I can modify each layer separately, changing their color, illumination and contrast etc. To try and reduce the CG-like appearance, I apply a blur and a lens distort to the final composition.



## Several tests

In the search of the ideal portrait to show in this article, I experimented with several looks, from several camera perspectives and with different types of light. I also used the node RGB to BW to convert the image composed in colors to white and black as test.

## Final portrait



After many tests, I found the image with which I am happy. See the following image for the composition nodes I used to create the final portrait •

# MAKING OF - NDZAMI



by - Bidjanga Achilles

Thanks foremost to the developers of Blender. I have finally finished my first short film using only Blender, I have made a 10 minute film titled "NDZAMI", which in French means fetishes. A brief synopsis: it is a question of a crippled woman collector and traditional practitioner who fights against animals bewitched by one of her collectibles.

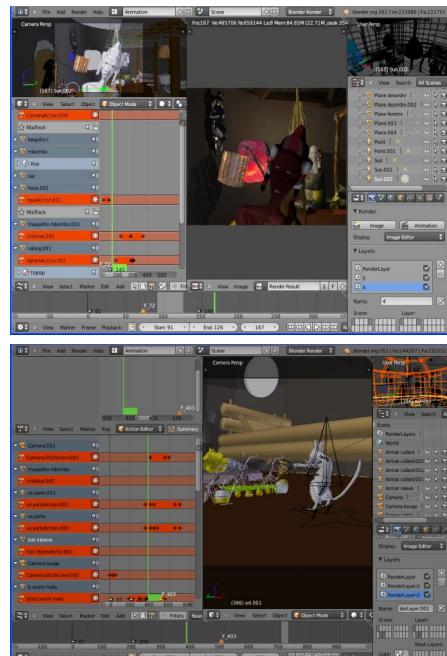
I have been using Blender since June 2011 and after six months I decided to improve my training by making a short film. Obviously I have encountered several obstacles while improving my abilities.

Through a combination of Blender magazine articles and several tutorials I managed a satisfactory result. Overall, it took me 15 months in total to

## Introduction

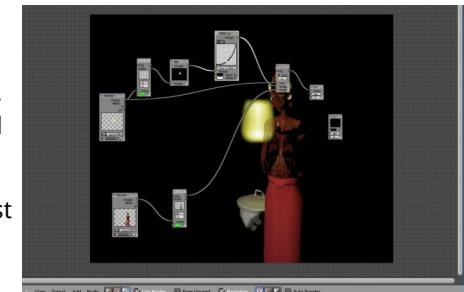
Hello to all the Blendheads around the world.

I am Bidjanga Achilles, I am based in Yaound, Cameroon (Achillo for friends and artists).



complete this project.

I would like to mention that the festival Ecans The Black, chose my short film for its first broadcast in Cameroon ●



I'm studying Performing Arts and Film cycle master at University of Yaounde.

Contacts: [b\\_achillo77@yahoo.fr](mailto:b_achillo77@yahoo.fr)  
[bidjangable@gmail.com](mailto:bidjangable@gmail.com)

237 78339395 - 237 5671639

# BLENDER - Create Your Own Video Game



by - Shemseddine Boukhatem

## Introduction

So you want to create your own video game but you don't know where to start making the awesome ideas that you have? Well read on and I will set you on your way to creating your own game.

I am assuming you have no idea what it takes to create a game and you are here to find out how you can start off so I will state everything you need to do to start game making.

### Step1: What you need..

So you have played and watched great video games and you really enjoyed them. Now you want to start making worlds of your own, playing them and having others enjoy them too.

Depending on whether you think developing a game is hard or not, this is a question that only you can answer, the key here is time. If you have time in your hand (and a computer of course, internet helps too), you can start creating games, learning to improve your skills and creating better games.

Sure many of the games you may have played such as Gears of War, Fifa, World of Warcraft, Call of Duty took years, millions of dollars and a team of about 12 people to complete the game. But this doesn't mean that you can't create your own game with no money at all. Like I've said, all you need is the time and motivation.

### Time and Motivation

I have started many projects before and ended up abandoning them. Not because of lack of money but because of lack of

time and motivation.

When working on a game it can get really boring especially since you are working on your own. The progress can be very slow and on top of that you have other things to do such as school or college, going out or family time which means that you don't have the time to work on the game so you end up abandoning it.

Here are a few games that I ended up abandoning:

- Land of Lords [RPG]
- Golf Game
- Jump the Game [Four levels so far]
- Online 3D chat system [W.I.P]
- Land of Lords (talent needed) RPG [ON HOLD]
- Pirates and Cannons
- Blender Chat (NETWORKING) [WIP]
- [Move to WIP] Wizarding world.[Animators + Modelers
- [WIP] ~Barn Town~. 2010 Contest Game.

### What you learn from unfinished projects

Unfinished projects are not a waste of time as you can learn a lot from them. First of all you will learn more about yourself and what you are capable of. Maybe the project was too big for you for now. This is a good lesson to learn because the next time you do a project, you will be able to know what you can do in the amount of time you have.

Secondly, if you did start the project and got some of it done, you would learn whether it worked or not. This could be code or art. This means that you are learning while you are creating them game.

Things that I've learnt from my projects include modelling 3D objects, texturing, animation and a lot of coding. You might think it is straight through coding the game, but you need

# BLENDER - Create Your Own Video Game

planning for that. By failing to finish a project you will know where you went wrong and know how to fix it next time.

## Using google to teach yourself

The best way to learn is by teaching yourself. I found that by learning how to use google properly, I was able to find a lot of useful information about how to make games.

You will need to know what to search for to find things that will help. Examples include:

- programming tutorials
- game tutorials
- learn blender
- game development

Also check out the local library for game development or programming books. Books like these really do help you.

## Step2: Learning Game Development

Game Development involves many things put together. To make a game you will need Artistic skills (2D and/or 3D), Programming skills, level design, GUI (Game User Interface), Dialogue and Text and many other things. But to really begin creating a game you will mostly need artistic and programming skills.

## Programs for Creating Games

There are many programs that allow you to create games and each of them has a taste and a feeling but I will be only focusing on two, one for

2D game developing and the second for 3D game developing.

Both of these are free of charge and do not need any experience to use them (apart from knowing how to use a computer).

### Game Maker



Game Maker is a simple program that allows you to create fun games.

When using Game Maker you get more than just a program, they have their own market place where you can share and play games submitted by the users. You can also submit yours too when you make a game.

You can download the free version of game maker at their website <http://www.yoyogames.com/make>.

This is a really good starter program which allows you to gain experience making games.

They have Drag and Drop methods for creating a game where you can drag whatever objects you want to a scene that you have made and assign actions to that object. You can make the objects stationary or have it move about randomly. You can also make the objects solid so you can use collisions.

Game Maker has everything you need to make a game such as timers, titles for the User Interface, spirits which are the image you can create. Everything is organised in the folders on the left hand corner and you can develop your game on the right hand side of the screen.

When you install the program, you can start off with a tutorial which is automatically there when you start it for the first time. I really advise you to do this tutorial as it will help you with getting used to the environment.

Game Maker isn't just for beginners, as you progress you can make very complex games and levels. The Game Maker Scripting Language will give you a lot more freedom in creating the game by providing the ability to add networking and even going 3D.

Game Maker is a very powerful software with a lovely community willing to help anyone.

### Blender

While Blender is mostly used by 3D modellers and animators it also has a very powerful gaming engine. Learning Blender might be harder than



learning Game Maker but it allows you to create fully functional 3D games with the standard of a top end game.

Blender offers you all this plus it has one of the best communities I have ever encountered. People are very willing to help you and answer

# BLENDER - Create Your Own Video Game

any questions you have. Also they have a news channel called [blendernation](#) and also a magazine that will keep you up to date with everything that is blender.

The software may be hard to use but with all the help you will be getting, I will say that it is as easy as Game Maker or even easier if you have the time to learn it.

The user interface is very flexible and might look messy at first look but in time it will allow you to work with the software the way you want to.

I suggest the best way to start learning this program is not to dive in the Game Engine but to learn how to create the 3D content and be comfortable with how the software works. This then allows you to go into developing the very game you want to build.

Games are built in the Game Engine by using logic bricks. These are similar to what Game Maker has but this is more advanced. With logic bricks you can create a very good game and there are examples of what can be done if you look at the Blender website.

When you open the program please don't be put off, you can play around with it for a bit and see how complex it is but then I advise you to have a look at some of these tutorials to get you started:

**Youtube tutorials:** to get you started. Follow the lessons to learn more and more and do what they do too.

**Blender Cookie:** I wish I had these when I started. These tutorials will definitely get you started and be a pro at blender in no time.

**Blender manual:** if you would like to learn from reading then this is very helpful.

You can find more tutorials out there by typing blender tutorials on google or on youtube. The best way of learning is to practice, make mistakes and learn from the mistakes.

When you start getting comfortable with Blender and have made a game or two with logic bricks, then it is time for you to start programming. Blender uses the scripting language called Python. This is a very powerful language and the best thing I've used for many reasons.

Learning Python doesn't just allow you to create complex games in Blender, but when you learn python it will be much easier to learn other programming languages to make games. (The best one for game making that the industry uses is C++ which I learned after Python)

I really suggest that this is the route for you to take as it will get you to where you want really fast.

## Step3: Getting help and finding a community

So now that you are learning how to make games and teaching yourself online, you might have loads of questions and don't know where to go about asking them. This is where you should find a community to join.

Joining a community is very good because you will be able to get more news about the software, get help when you are stuck, be around people who have similar interests as you and also learning from others work and showing oth-

ers you work.

### Blender Artists

<http://www.blenderartists.org/forum/> This is the best forum for



Blender. This forum has over 100,000 members and it is one of the most active forums I've seen. The forum is organised in many categories and they are all active. I really advise you to join here.

### Blendernation

<http://www.blendernation.com/> Get the latest news from the Blender world. This website has all kind of Blender news from projects that have been finished to user groups meeting and tutorials.

### Game Maker Forum

<http://forums.yoyogames.com/> This is the official game maker forum. The community is very helpful and the forum will give you a lot of help with anything you may need. There are also user submitted tutorials and useful content.

### Joining a team

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It is very hard work to keep yourself motivated when working on a game on your own. Or maybe you want to create a game but don't have a game idea yet or even you want to experience making a game but don't want to start your own just yet. Well why not join a team?

In the forums I have suggested, they will have areas where you have team projects. You can learn a lot from joining a team such as being a team leader, organisation, keeping to deadlines and exchanging ideas.

## Game Makers Group

I have created a group called Game Makers Group 2 years ago where I got members from Blender and Game Maker to join and create a team where you can exchange anything related to game making. Some of the members come and go as the website become inactive sometimes but some of the members have stayed for the ride.



Game Makers Group have helped out a lot of people who wanted to start with game making and didn't know where to begin. We also had some team projects with many people joining in. To get an experience of making a game in a group, join the [Game Makers Group](#).

## Step4: Where to go from here

So now that are in some sense a professional at making games using the software discussed above, you will need to experience other engines

and languages and make games for different platforms. When you start learning more programming languages, there will be no limit to what you can do next.

If the content you are creating is very good you can even sell your game on markets for xbox, iphone, facebook, and also android.

Unity is a program that lets you create games and export them to many different platforms including iphone and the nintendo wii.

If you have got to this point, you should be experienced enough to find your own way of what to do next. Just keep in mind to keep on learning.

## Step5: My experience

I have had an interest in Game Making at a very young age. I was 13 (this might be old to some here) and in year 8 and I had no idea where to start with making my own game. I searched a lot of places and found some online programs where you can create a game but these website didn't look like the soft of thing I wanted.

At that time I wanted to make a game because I liked games and also wanted to sell it and these websites didn't cut it for me.

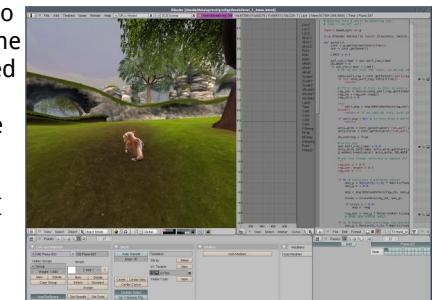
I searched and searched for many months. Then I kind of gave up on game making and wanted to dabble in animation. I had no money since I was young and I had a lot of free time so I searched for programs. The first program I downloaded was Daz but it had no support and I wanted to create my own characters which it didn't let me.

I eventually stumbled onto a program called

Blender as I was searching on youtube for 3D tutorials. I immediately downloaded it. I opened it up and there was so much going on and since I didn't know the hot keys, I had no idea what I was doing. Pressed a button there and then but didn't know what was going on. So I closed it and never used it again.

Few months passed by and I got the bug of creativity. I wanted to do 3D animation. So I gave Blender a second shot. I searched for tutorials on youtube and followed some of them and now I was a little bit familiar with Blender and can create a lot of things. I was so happy.

I carried on learning Blender for more months and one day found a video about the Game Engine in Blender. This was perfect. A program that can create movies and games all in one. I started creating small games (unfinished of course) such as collecting coins and all of that and this seemed so good to me so I looked for more and more tutorials.



One day I found a website called Blender artists which had so much useful information. From this point on, I didn't have internet in my house. I didn't get to sign up to Blender but when I visited the local library, I saved as many pages from the website as I could and put them on my USB to read them at home.

As I read more and more about the game engine I felt really comfortable with Blender. I was also

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doing a lot of animation and 3D modelling. 2 years later, in 2009 I decided to sign up to blender since we was getting the internet back. I spend a lot of time on the blender artists website and learnt so much from it and the people where great and I made a lot of friend from there.

### My name there is Retro World

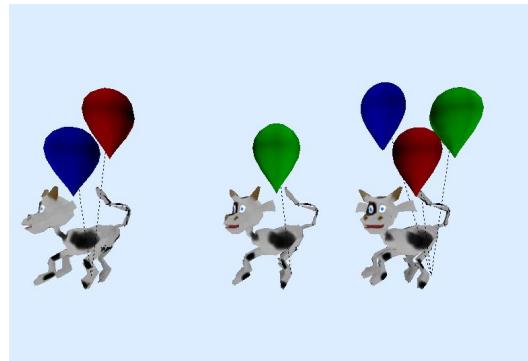
I created many projects which I stated earlier in this article which I never got to finished and also joined projects that where started by others.

The first game that I completed was called Guess My Number Game (Done In 30 MINUTES)

As the title says, I finished this game in 30 minutes. This wasn't like a serious project but it was to me to show that I can finish a game. Of course I was more experienced but I wanted to create a simple finished game.

In March 2, 2010 I created a group called Game Makers Group which will bring together people from two software packages that taught me how to make games. This was a community for me to teach others games and also create games in a group. The site had classes and many members but then my internet went off once again and the community of the Game Makers Group started to decrease. When I came back to it, I was still able to get users to come back and join and we worked on more projects, at this point I was trying to create my second full game which was called Cow Fall.

CowFall was made in Blender and it took me a full weekend to finish. I was happy with this game and everyone else seemed to of enjoyed it :D



We tried to make a Game Maker version as a team, I wasn't really involved, but the team did do well and almost finished it. I am not sure what has happened to it.

Anyway GMG (Game Makers Group) was active at times and we still get the team to talk every now and again, sometimes more than other times but it isn't the way it used to be. This is when I didn't have the time and I needed to get more organized.

I was inactive for a very long time until a few weeks when I decided to look at GMG and also Blender Artists. I decided to post and I kept posting on this blog also and I found that Blender Artists is holding a competition, hosted by one of my friends and GMG member mokazon. I decided to join and document everything on this blog. I hope I am able to finish it in time and keep my motivation up to create the game.

I also hope that GMG (Which is older than 2 years now) stays alive and keeps on going :D ●

# Want to write for BlenderArt Magazine ?

## HERE IS HOW

### Step1. Choose what you want to write.

- Tutorials explaining Blender features, 3dconcepts, techniques or articles based on the focused theme of the issue.
- Reports on useful Blender events throughout the world.
- Cartoons related to blender world.

### Step2. Send submissions to [sandra@blenderart.org](mailto:sandra@blenderart.org).

- Send us a notification on what you want to write and we can follow up from there.

### Step3. Some guidelines you must follow.

- Images should be properly cut and represent the text appropriately.
- Images should be provided separately in a folder named (images, img or pictures).
- Images should be named/labeled likewise (image1 or img1 etc).
- Provide proper captions for images if and when needed.
- Image format preferred is PNG but good quality JPG can also do.
- You can submit inline images in documents like DOC or Openoffice ODT etc but make sure the images were properly named before importing them in docs.
- 

Images inside a PDF are a strict no, but a pdf document with images if provided to show how the author wants the formatting of doc will be appreciated.

- Make sure that screenshots are clear and readable and the renders should be at least 800px, but not
- Text should be in either ODT, DOC, TXT or HTML.

### Step4. Archive them using 7zip or RAR or less preferably zip.

Step5. Additional stuff • Please include the following in your email:

- Name: This can be your full name or blenderartist avatar.
- Photograph: As PNG and maximum width of 256Px. (Only if submitting the article for the first time )
- About yourself: Max 25 words .
- Website: (optional)

Note: All the approved submissions can be placed in the final issue or subsequent issue if deemed fit. All submissions will be cropped/modified if necessary. For more details see the [blenderart website](#). BA takes no responsibility for the material in any form and the submission will automatically mean that you have agreed to the [blenderart terms and conditions](#) for submission for more information please do read the disclaimer.

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